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**2002 REPORT ON POST CONSUMER
PET CONTAINER RECYCLING ACTIVITY**

FINAL REPORT

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INTRODUCTION

This report is intended to give the reader an overview of the recycling of injection, stretch blow molded PET containers in the United States. Information contained in this report was obtained through surveys conducted by the Association of Postconsumer Plastic Recyclers (APR), R.W. Beck, Moore Recycling Associates, US Department of Commerce and data generated internally by the National Association for PET Container Resources (NAPCOR). In order to present as accurate a picture of these activities as possible, additional data and information was obtained through discussions with individual collectors, intermediate processors, reclaimers, converters, brokers, exporters, resin producers, bottle manufacturers, public recycling officials, consultants and key industry members.

PET BOTTLES AVAILABLE FOR COLLECTION

After the solid growth experienced during 2001, growth in PET applications slipped back to the 6-7% level for 2002. With non-food applications switching in and out and no new major food package introduced, beverage applications accounted for almost all of this gain. Once again still water, isotonic and juice and juice drinks all posted 15 % increases in the use of PET bottles by weight. What growth there was in Carbonated Soft Drinks (CSD) was more a result of the continued trend of selling product in smaller packages rather than sizes greater than 24 ounces. For this reason CSD packages now account for slightly less than 45% by weight of the entire PET stream with all other applications, or custom containers making up the balance.

NAPCOR has determined that the total number of pounds of PET bottles and jars available in the United States for recycling in 2002 was 4.007 billion. This number reflects the total amount of PET bottle resin used by U.S. bottle manufacturers from U.S., foreign and recycled sources less scrap generated and not reused, exported bottles and preforms and bottles less than eight ounces in size. This number is used in this report as the denominator in determining both the recycling and utilization rates.

POST CONSUMER PET BOTTLE PURCHASES

The amount of post consumer PET bottles collected for recycling and sold in the U.S. was 797 million pounds (mmlbs) in 2002. The breakdown of buyers is as follows:

520	- Purchased by U.S. Reclaimers
275	- Purchased by Export Markets
<u>2</u>	- Composite Applications (other)
797	- Total Amount of Post Consumer Bottles

U.S. reclamation companies reported purchasing fewer post consumer bottles in 2002 than any time since 1993. Conversely, the 275 mmlbs. of post consumer bottles exported consisting of 19.5 mmlbs. to Canada with the balance going to China and represents a 17.5% increase over the record set in 2001. While there was constant talk throughout the year of increased interest on the part of Chinese buyers in dirty flake spurred on by the ongoing debate concerning the legality of importing bales direct to China rather than through Hong Kong, less than 3 mmlbs. of dirty flake was reported as purchased. The dramatic increase in bale purchases by the Chinese reflected not only their ability to price U.S. reclaimers out of west coast markets but an overall increase in the actual number of buyers. In addition to the four Canadian buyers 135 Chinese export brokers were identified as PET buyers, of which 57 responded to the industry survey.

U.S. reclamation companies continued to supplement their purchase of the U.S. post consumer bottles with bottles imported from Canada, Mexico and Europe totaling 57 mmlbs., as well as purchasing alternative feedstocks, i.e. strapping, film and sheet.

Post Consumer Bottles – Gross Weight Purchases (mmlbs.)	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
A. Purchased by U.S. Reclaimers + Other	605	549	580	656	588	599	600	522
B. Purchased by Exporters	<u>170</u>	<u>148</u>	<u>111</u>	<u>89</u>	<u>183</u>	<u>170</u>	<u>234</u>	<u>275</u>
C. Total U.S. Material Recycled (A+B)	775	697	691	745	771	769	834	797
D. Post Consumer Bottle Imports	<u>46</u>	<u>87</u>	<u>66</u>	<u>101</u>	<u>60</u>	<u>69</u>	<u>70</u>	<u>57</u>
E. Total Used by U.S. Reclaimers (A+D)	651	636	646	757	648	668	670	579

2002 GROSS RECYCLING RATE

Total U.S. Bottles Collected and Sold for Recycling **797 mmlbs** = 19.9%
Total U.S. Bottles Available for Recycling **4,007 mmlbs**

Year	Total U.S. Bottles Collected (MM lbs.)	Bottles on U.S. Shelves (MM lbs.)	Gross Recycling Rate
1995	775	1,950	39.7%
1996	697	2,198	31.7%
1997	691	2,551	27.1%
1998	745	3,006	24.8%
1999	771	3,250	23.7%
2000	769	3,445	22.3%
2001	834	3,768	22.1%
2002	797	4,007	19.9%

PET BOTTLE BALE MARKETS

The unusual combination of significantly decreased demand from the fiber sector, increased export activity and steady growth in bottle to bottle applications created the most stable bale market in years. The low, nearly unsustainable, bale pricing seen toward the end of 2001 continued briefly into 2002, which after a spike in March and April settled into the \$.07-.09 range the rest of the year. As opposed to most other years there was no interruption in export purchases and by year end Chinese buyers were competing largely with themselves on the west coast while increasing the quantities taken out of east coast ports.

NON DEPOSIT PET BOTTLE BALE PRICES (Picked up, Truckload quantities, Sellers dock)

	LOW	HIGH
JANUARY	\$.05/ LB	\$.08/ LB
FEBRUARY	.05	.08
MARCH	.07	.10
APRIL	.07	.11
MAY	.07	.09
JUNE	.07	.09
JULY	.07	.09
AUGUST	.07	.09
SEPTEMBER	.07	.09
OCTOBER	.07	.09
NOVEMBER	.07	.09
DECEMBER	.07	.09

RECLAMATION CAPACITY

During 2002, 15 plants owned by 14 different companies produced clean RPET from post consumer bottles. Thirteen of these plants with a capacity of 853 million pounds (mmlbs) gross weight in, operated the entire year, while one plant with total capacity of 20 mmlbs operated intermittently and one plant shuttered with a capacity of 33 mmlbs. The plants consumed post consumer bottles, pre consumer bottles, post consumer strapping and other feedstock totaling 639 mmlbs for a capacity utilization rate of 70.5%. Seven are vertically integrated back to end product (3 bottles, 2 carpet, 2 strapping) and account for slightly more than 50% of total capacity. Six plants have technologies that have received letters of non-objection (LNO) from the Food and Drug Administration, which allows the RPET produced to be used in direct contact with various food and beverage products.

RPET Production Summary (MMlbs.)	1995	1996	1997	1998	1999	2000	2001	2002
A. RPET Produced by U.S. Reclaimers from U.S. Bottles	496	438	486	513	457	476	476	401
B. RPET Produced by U.S. Reclaimers from Imported Bottles	<u>38</u>	<u>70</u>	<u>55</u>	<u>75</u>	<u>47</u>	<u>51</u>	<u>44</u>	<u>46</u>
C. Total RPET Production U.S. Reclaimers (A+B)	534	508	541	588	504	527	520	447
D. Clean Flake Equivalent from U.S. Bottles Exported	<u>153</u>	<u>134</u>	<u>92</u>	<u>75</u>	<u>154</u>	<u>143</u>	<u>184</u>	<u>212</u>
E. Total Clean Flake from U.S. Bottles (A+D)	622	572	578	588	611	619	660	613

UTILIZATION RATE

Clean Flake Produced from U.S. Post Consumer Bottles	401 mmlbs		
+			
Clean Flake Equivalent of U.S. Bottles Exported	212 mmlbs	=	15.3%
÷			
Total U.S. Bottles Available for Recycling	4,007 mmlbs		

Year	Clean Flake Equivalent (MM lbs.)	Bottles on U.S. Shelves (MM lbs.)	Utilization Rates
1995	622	1,950	31.9%
1996	572	2,198	26.0%
1997	578	2,551	22.7%
1998	588	3,006	19.6%
1999	611	3,250	18.8%
2000	619	3,445	18%
2001	660	3,768	17.5%
2002	613	4,007	15.3%

2002 RPET MARKET

The poor economic conditions which started to severely impact the RPET market during the fourth quarter of 2001 carried into and generally stayed in place throughout 2002. A significant drop in both the amount of RPET used, particularly in fiber applications, and the number of companies using it in 2002 reflected these conditions. Less than 50 US converters consumed a total of 588 mmlbs of RPET feedstock consisting of:

- 401 mmlbs of clean flake produced from US post consumer bottles
- 46 mmlbs of clean flake produced imported post consumer bottles
- 55 mmlbs of clean flake produced from pre-consumer bottles, post consumer strapping and other feedstock
- 44 mmlbs of clean flake produced by Canadian reclaimers

The balance was supplied by Europe, Mexico and reclaimers from other countries in that order.

RPET Product Categories RPET used (mmlbs)

	1996	1997	1998	1999	2000	2001	2002
Fiber	292	320	415	417	452	435	344
Sheet & Film	69	71	89	68	65	37	18
Strapping	66	58	67	80	101	82	83
Engineered Resin	24	26	30	26	27	24	10
Food & Beverage Bottles	24	41	52	68	54	77	86
Non-Food Bottles	71	53	47	50	40	44	43
Other	<u>1</u>	<u>1</u>	<u>7</u>	<u>9</u>	5	2	4
Total U.S. Converter Consumption	547	570	707	718	744	701	588

SUMMARY

The lackluster growth in PET packaging applications reflected market maturity in many applications as well as generally poor economic conditions. While the continued phenomenal growth in PET bottles used for still water and isotonic continues to befuddle forecasters, many other product categories are at or near saturation which may result in future market expansion in the mid single digit range rather than the double digit growth the industry has become accustomed to. Of course even a 5% increase of a four billion pound market can hardly be called insignificant.

2002 saw a dramatic decrease in the amount of post consumer bottles reported as sold to U.S. Reclaimers and export markets. There is not a clear explanation for this. The losses from the discontinuation of the NYC curbside program (that interestingly resulted in greater losses in the redemption stream than what was coming out of the MRFs) were offset by increases in California collection. Large MRF operators and other non-deposit generators around the country did not report any significant downward trend in PET processed and sold. There is little question that Americans are consuming more beverages in smaller PET bottles away from home while “on the go” but that should not affect previously collected volumes. While all U.S. and Canadian reclaimers provided detailed data many Chinese exporters were less than forthcoming. Of the 135 exporters identified as soliciting post consumer bottles in either bales or dirty flake, 56 companies reported volumes purchased, 57 were determined to have no business activity in this area for 2002 and 22 declined to cooperate. Even with the posted 17.5% increase in exported material over 2001, one must conclude this is an under reported number.

The US reclamation industry had a shaky year, the result of RPET having a difficult time competing in two key end market applications, fiber and sheet. Readily available Q2 and Q3 quality virgin material at discount prices combined with price pressure from imported alternatives resulted in a dramatic drop of RPET consumed in these two categories. Similar price pressure and generally poor economic conditions prohibited other market segments and the reclaimers that supply them to absorb these volumes and allowed the export market to increase bale purchases throughout the year at competitive prices. Food grade bottle usage of RPET was the only category to significantly increase in 2002 primarily reflecting The Coca-Cola Company’s continued commitment to the use of RPET in their packaging. Canadian reclaimers also provided more competition to U.S. reclaimers as all three increased production as a result of debottlenecking and retrofits completed in 2001 and early 2002, much of it going to US bottle applications. Canadian end use applications, particularly in fiber and engineered resins, also increased which may further exacerbate the “border wars” for bales in the future.

Overall the business activities in 2002 continued to highlight the emergence of the Far East, particularly China, as the predominant factor influencing the U.S./North American PET recycling industry. Their ability/willingness to outbid U.S. reclaimers for feedstock and sell the resulting products back into U.S. markets at discounted prices coupled with the inelasticity of bale supply puts most North American reclaimers in a precarious position should these conditions continue.